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ABSTRACT

The ultimate goal of reading instruction is to develop independent readers. To become independent, students must be in control of their own thinking processes. They must be aware of cognition and the conscious use of metacognitive processes. Instruction in metacognition will help students gain control over their own thought processes. Interaction is also an extremely important aspect of explicit instruction--interaction between teacher and student, teacher and text, student and text, and student and student. To assist students in the development of metacognitive skills and strategies, a variety of activities and techniques may be utilized. Teaching procedures that stress the modeling of metacognitive strategies, promote interaction between teacher/student/text, and provide opportunities for practice result in the increased comprehens on of text. Such procedures might include teacher directed activities and teacher modeling, prereading activities, activities during reading, postreading activities and ongoing activities. (The paper includes implementation strategies for each teaching procedure.) (HOD)

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METACOGNITION AND READING: THEORETICAL BACKGROUND AND IMPLEMENTATION STRATEGIES FOR CLASSROOM TEACHERS

BEST COPY AVAILABLE

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March, 1985

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CHAPTER 1

INTRODUCTION

Significance of the Paper

The subject of much discussion and controversy has been the most appropriate method to teach "Johnny" and "Jane" to read and whether they are, in fact, literate after receiving reading instruction in a formal setting. It seems that teachers are satisfied with the teaching of decoding skills. Teachers do not appear to be satisfied with the instruction, acquisition, and application of comprehension skills, however. It is constantly reported that students can read the basal readers but do not comprehend material in content area textbooks. The author proposes that more time must be utilized to teach specific comprehension skills which are textbook relevant in order for reading skill instruction be complete and literacy insured.

In 1967, Black stated that 250 million textbooks were being used in the education of 50 million elementary and high school students and the average student was expected to cope with approximately 32,000 textbook pages during his/her school career. Because texts are prominent in the education of our children, one might expect that a high percentage of time would be used to teach students to learn from those texts. Guthrie (1982) reported a teacher evaluation study in California in which reading instructional time was logged for 21 classes, grades 2-5. In reading classes where students were expected to learn reading skills that would be in high demand throughout school, the amount of time spent specifically with textbooks in the content areas was surprisingly low. Only 4.9% of reading class time was allotted to practice in reading and learning from textbooks.

Teachers can teach and students can learn specific comprehension skills when appropriate materials and procedures are employed. Explicit instruction and directed practice to teach students to apply the skills of reading comprehension in content textbooks is imperative. Students must be helped to apply the basic comprehension skills once those skills have been presented. Because students do not spontaneously apply the skills presented in skill lessons, instruction and activities to encourage the development of and automatic use of comprehension skills must be incorporated into daily instruction.

Statement of Purpose

The purpose of this paper is to introduce the classroom teacher to the theoretical aspects of metacognition, an often overlooked aspect of reading proficiency, and to give the teacher some practical implementation strategies that can be useful in teaching the metacognitive skills necessary for effective reading comprehension.

Definitions of Terms

Before beginning the discussion of metacognition and implementation strategies, it is important to clarify the meanings of certain terminology used throughout this paper.

Reading: According to Myers and Paris (1978), reading is a complex behavior that involves the interaction between the perceptual processes, cognitive skills, and metacognitive knowledge. In the early twentieth century Gray (1937) defined reading in this way: effective reading assumes that the reader not only recognize essential facts and ideas presented

but must also reflect on the significance of the ideas, evaluate the ideas critically, discover relationships between the ideas and facts, and clarify the understanding of the ideas apprehended. In other words, reading is a form of vigorous thinking. The writer proposes that comprehension must be present or reading will not occur; consequently, reading is comprehension. Reading is a process akin to thinking.

Cognition: Cognition is defined as the intellectual functioning of the human mind characterized by remembering, comprehending, focusing, attending, and processing information. (Babbs & Moe,1983) It is the process of knowing.

Metacognition: Metacognition relates to the knowledge an individual has about his/her own cognitive processes and the ability to use those processes. (Hayes,1982) Metacognition is knowing about knowing or knowing about cognition. Flavell (1976) defined metacognition as an individual's knowledge about his/her own cognitive processes and products or anything related to them. It involves the active monitoring, regulation, and orchestration of the cognitive processess in relation to a concrete goal or objective. Metacognition involves several dimensions. The first dimension is knowing about oneself and one's abilities in relation to the task. The second dimension is knowing about the task; for example, what is the purpose and scope of the task? The third dimension is knowing about strategies that are relevant to the task at hand and knowing when and how to use those strategies. (Flavell & Wellman, 1977) Metacognition basically involves various problem-solving skills.

Comprehension Monitoring: Comprehension monitoring is essential for understanding and is an important aspect of metacognition. Comprehension monitoring involves the ability to judge the quality of one's understanding, to form a plan or goal, to develop a hypothesis, to

check progress toward the goal, to evaluate the results and then, if necessary, to select and apply appropriate "fix-up" strategies so the goal may be reached. Comprehension monitoring involves reflection on one's own state of comprehension, generation of plans for improving comprehension, and implementation of that behavior. A reader who efficiently monitors his/her own comprehension must be flexible and adaptive and should be able to generate alternate plans and employ appropriate numbers and kinds of plans to solve a particular task. Comprehension monitoring also implies an awareness of goals and strategies for meeting various goals.

Because reading must be defined as understanding and thinking about written materials and because comprehension is not automatic; the reader must often use various problem-solving strategies or skills to achieve understanding. In other words, the active reader must monitor his/her own understanding.

Relationship Between Reading and Metacognition

In summary, metacognition involves the understanding of one's own mind, knowledge about knowing, knowledge of what one knows, when one knows, why one knows or fails to know, how one comes to know, and knowledge of the learning strategies that can be applied when one fails to comprehend. (Guthrie,1983) Because reading has been defined as understanding and thinking about written materials and because comprehension is not automatic; the reader must often use various problem-solving strategies or skills to achieve understanding. In other words, the active reader must employ various metacognitive skills to insure effective comprehension. Metacognition coordinates and directs an individual's thinking and behavior during the reading process.(Myers & Paris,1978)

CHAPTER 2

REVIEW OF LITERATURE

Numerous studies have been conducted to ascertain the different characteristics of good and poor readers. Let us first look at two studies which illustrate the contrasting perceptions of good and poor readers and their definitions of reading. Johns (1974) asked a group of fourth and fifth grade children the question, "What is reading?" The answers ranged from a lack of insight (a vague or no response) by poor readers to a mature appreciation of the nature of reading (a response indicating that reading is a combination of learning words and understanding the meaning of a passage) by good readers. On further investigation Johns found a modest but significant correlation between the maturity of answers to the question and performance on the vocabulary and comprehension scales of the Gates McGinite Test of Reading Achievement.

Forrest and Waller (1980) conducted a similar study in which a group of third and sixth graders were asked the question: "Is there a difference between knowing what a word *says* and knowing what a word *means* ?" Good readers in both grades gave more appropriate and complete answers than the average and poor readers. Although it was observed that grade level and amount of reading experience did influence the answers, it was also observed that even young children who were good readers were able to make the distinction between decoding and reading for meaning.

Other studies have shown that good readers demonstrate different observable reading behaviors than do poor readers. Golinkoff (1975-1976) found that good readers were capable of rapid and accurate word recognition. They read in phrases and adapted a flexible pattern of

reading. They varied their eye movements, modified the size of the unit they processed at one time and used supplementary contextual information efficiently. Good readers attended more closely to information relevant to a goal, ignored information that could not be utilized to reach that goal, and processed the least amount of information compatible to the reading goal. In short, good readers were able to process material in the most economical way possible when they were given a particular reading goal or purpose. Golinkoff also found that good readers demonstrated some knowledge and awareness of what was involved in good reading comprehension and when comprehension occurred. In other words, good readers demonstrated the use of certain metacognitive skills.

Pearson and Gallagher (1983) reported still more characteristics of good readers. Proficient readers demonstrated a more effective way of utilizing background knowledge than poor readers. Good readers had better general and specific vocabularies, drew inferences more effectively, and demonstrated better summarization skills. In addition, good readers used text structure to facilitate a more complete recall of a passage. In reference to metacognitive skills, particularly comprehension monitoring, good readers knew more about strategies they used to answer questions and were better at monitoring and adjusting the skills they used. In other words, successful readers recognized when they did not understand, knew what to do when they realized they did not understand, had knowledge of corrective strategies that could be used to fix-up comprehension, and knowledge of how to use those corrective strategies. Additionally, good readers used those strategies routinely and independently.

Poor readers, on the other hand, demonstrated few of the activities listed above. Poor readers attended almost exclusively to the decoding of individual words. (Canney & Winograd, 1979; Johns, 1980; Myers & Paris, 1978) More likely than not, they missed the

whole point of reading, namely understanding. They generally had little knowledge of what they did and did not understand. Written language was manipulated as bits and pieces rather than a contextual whole. More attention was paid to inconsistencies within a single sentence than inconsistencies across sentences. Poor readers did not utilize problem-solving strategies such as forming a hypothesis before beginning to read (Bruce & Rubin, 1981) and had no plan or purpose for reading. Material was not spontaneously organized by poor readers. (Gagne & Memory, 1978) They did not usually draw upon background knowledge about a topic (Spiro, 1980) nor did they monitor their own comprehension. (Baker, 1979; DiVesta, Hayward, & Orlando, 1979; Owings, Peterson, Bransford, Morris, & Stein, 1980; Paris & Myers, 1981; Garner, 1980) Additionally, poor readers did not apply fix-up strategies to remedy comprehension failure. (Bransford, 1979; Brown, Campione, & Day, 1981; Golinkoff, 1975-1976)

As has been reported, good readers have a different perception of what reading is and approach the reading process in a very different way than poor readers. Proficient readers employ various problem-solving strategies in order to assure comprehension; they utilize various metacognitive skills as they read. Significant research has been done on the topic of metacognition and one of the metacognitive skills, comprehension monitoring. One of the first studies was done by Markman (1977). She asked a group of first, second, and third graders to listen to oral directions for a magic trick. The goal of this study was to find the point where the children noticed that the directions were inadequate to perform the task. The first graders were unable to identify the inadequacy of the directions until they actually tried to perform the trick. Second and third graders, however, were better able to identify the need for more

information before actually performing the trick. The conclusion was that younger children process information more superficially than older children; younger children do not monitor their own comprehension as successfully as older children.

Garner (1980) conducted a study of junior high students who were classified as good and poor readers. The students were asked to act as editors and to classify passages which contained built-in inconsistencies as "very easy to understand", "OK", and "difficult to understand". After classifying the passages, students were asked to explain why they labeled selections as "difficult". The results duplicated that of other studies: good readers were more able to identify passages that contained inconsistencies as "difficult to understand" and could explain why a particular section was difficult. Poor readers did not demonstrate efficient comprehension monitoring skills.

Still other studies have been conducted concerning comprehension monitoring. Baker (1979) studied a group of students who appeared to monitor their comprehension but did not report confusion with inconsistencies. She found that students often made inferences unconsciously to resolve the confusions they might have had. They did not use appropriate comprehension monitoring skills and fix-up strategies to assure understanding. Baker hypothesized that researchers should, therefore, ask the question: "How do students monitor their comprehension?" rather than "Do students monitor their comprehension?" This study suggests that students might benefit from explicit instruction in comprehension monitoring skills.

Owings, et al., (1980) also asked good and poor readers to read and study stories that contained inconsistencies. They found that good readers spontaneously monitored their comprehension as they read. Good readers exhibited problems with less sensible stories and spent more time on the more difficult stories. The poor readers did not, however, rate the difficult passages accurately and did not appear to notice inconsistencies. Additionally, they studied easy and hard stories equally. An interesting finding was noted, however. Poor readers could distinguish between easy and hard stories if they were warned that some of the passages might contain problems. These findings implied that students were not performing up to their potentials and that, with explicit instruction, comprehension monitoring could be taught and thus enable students to use these skills more spontaneously.

Markman and Goren (1981) studied a group of eight and ten year olds who were asked to identify inconsistencies or false statements in a series of essays read to them. The students were divided into three groups. Group 1 was told that the essays contained some problems. Group 2 was told that some of the statements were false and examples of the problematic statements were demonstrated. Group 3 was instructed that the essays contained inconsistencies and examples of those inconsistencies were given. The results showed that the groups which were given specific instructions identified more inconsistencies than the group which was given only general information. This study infers that specific instructions have an impact on and can help students to adjust their standards of evaluation when reading. This information supports the Owings, et al., (1980) conclusion that instruction in comprehension monitoring will most likely benefit students who experience comprehension difficulties.

Additionally Markman conducted three studies in 1979 that support the conclusions drawn by Markman & Goran (1981) and Owings, et al. (1980). A group of third, fifth, and sixth grade students were asked to read short essays which contained explicit (truth of statement) and implicit (logic) inconsistencies. In the first study, passage recall was good by all students but no implicit inconsistencies and few explicit inconsistencies were identified. In the second study when children were asked to repeat a passage, the third graders did not notice inconsistencies while the sixth graders noted only explicit inconsistencies. In the third study, half of the studnets were warned of possible problems in the essays. The sixth graders who were prompted identified more implicit inconsistencies than students who did not receive such instruction. The third graders who were warned of problems identified more external inconsistencies than the other group. These studies provide still more evidence that, if given specific instruction, children can learn to monitor their own comprehension.

Numerous studies have been conducted to determine the effectiveness of training in the use of comprehension monitoring and comprehension fix-up strategies. Carmichael and Deerborn (1947) and Rothkopf (1972) conducted studies to determine the effect of questions within the text. The researchers found that questions asked by an authoritative source and found within the text did have a postive effect on the comprehension of poor readers.

An experiment by Andre` and Anderson (1978-1979) sought to determine three things: (1) can students generate questions based on main points from a selection, (2) do questions facilitate learning, and (3) do students need to be trained to ask good questions. The results demonstrated that self-generation of questions during reading did facilitate better reading comprehension particularly for middle and low verbal ability students. Additionally,

the students who were taught to generate main idea questions constructed a significantly higher percentage of good questions than students who did not receive such training.

A study by Adams, Carnine, and Gersten (1982) analyzed the effectiveness of training using different study strategies. One group of students was taught to use the SQ3R study system. (See "During" Reading Activities, No. 4.) The second group did seatwork of the traditional type, and the third group was given no training. The results showed that the group which received the training in SQ3R did significantly better than the other two groups on immediate and delayed short answer tests. This study substantiates the importance of training students in the use of metacognitive skills such as rereading for clarification, thoughtful use of headings and subheadings, and distributed review. A study by Brown, Campione, and Barclay (1979) also supported the hypothesis that students who learned to recite and review information remembered the material better than students who were not taught to use such strategies.

Paris and Lipson (1982) designed instructional procedures to teach students to become more aware of comprehension obstacles and to help them learn to use strategies that facilitate comprehension. One procedure was similar to "Guided Practice". (See "During" Reading Activities, No. 5.) The other procedure was "Summarizing". (See Post Reading Activities, No. 6.) Both the third and fifth graders who recieved instruction using these procedures showed greater long-and short-term gains than the control group. Additionally, the experimental groups not only learned the strategies, but were able to demonstrate the use of those strategies.

A number of generalizations can be made from the research that has been reviewed. Good and poor readers differ in their perceptions of what reading is. Good readers describe reading as having to do with comprehension while poor readers emphasize decoding and word recognition. Additionally, efficient and inefficient readers demonstrate very different metacognitive skills. Not only are good readers able to identify comprehension problems but they also employ strategies to fix-up their comprehension difficulties. Poor readers, however, hardly notice if they are having comprehension problems. There is evidence from various studies conducted during the last decade that instruction in metacognition, specifically comprehension monitoring, can help poor readers to become more proficient readers. Because proficient readers employ problem-solving strategies in order to assure comprehension, it follows that poor readers must not know about or know how to employ problem-solving strategies as they read. Explicit instruction in comprehension monitoring can help poor readers become more proficient readers.

CHAPTER 3

IMPLICATIONS OF THE RESEARCH AND IMPACT IN THE CLASSROOM

As has been pointed out in Chaper 2 the research indicates that comprehension monitoring and the knowledge and use of other metacognitive skills and strategies is necessary for "good" reading to take place. Not only are the strategies important but the way the strategies are taught is of utmost importance. Comprehension monitoring skills are usually taught in one of three ways. The first is blind instruction; students are asked to learn strategies but are not told when, how, or why to use those strategies. Informed instruction is the second method. In this case, students are asked to learn particular strategies and are told the significance of those strategies. The third method of instruction, and the most effective, is self-control training. This method combines the elements of the first two procedures and adds explicit instruction in checking, planning, monitoring, and control of strategy use. The third method, according to Palincsar and Brown (1982) and other authorities, is the ideal way to teach comprehension monitoring and other metacognitive skills.

Chapter 4 will describe a variety of activities that may be used in the classroon to help poor and inexperienced readers to develop comprehension monitoring skills that will enhance reading proficiency. The type of cognitive and metacognitive activities selected for intensive instruction should have certain properties. Among those properties are transitutional applicability, manageability, and counterparts in "real life" experiences. (Brown, 1978)

Tierney (1983) also suggests that teachers should provide learning situations which simulate the task to which students are expected to apply the skills and strategies. Students should also be given numerous opportunities to discuss and practice strategies. Tierney suggests that the following reading strategies should be taught.

--activating and refining predictions

--maintaining and varying focus

--interrelating ideas

--self-questioning

--attending to important information

--discarding irrelevant information

--following topical development

--recognizing relationships

--evaluating understandings

--considering the worth of ideas

--deciding what is new information

--sensing mood and tone

--visualizing

--adding information

--redefining

--analogizing

--editing

--reshuffling ideas

Chapter 4 includes implementation strategies that may be used to teach the skills listed above. The chapter is divided into five sections: teacher-directed and teacher modeling activities, pre-reading activities, "during" reading activities, post reading activities, and on-going reading activities. This organization should facilitate the retrieval of activities by the classroom teacher.

Chapter 4

IMPLEMENTATION STRATEGIES

TEACHER-DIRECTED ACTIVITES AND TEACHER MODELING

1. Modeling or Think Alouds (Davey, 1983)

Purpose: To assist students, particularly poor and inexperienced readers, to clarify their views of reading and to develop appropriate strategies to enhance comprehension.

Step 1: The teacher selects a passage to read aloud to the class. The passage contains unknown words, some ambiguities, contradicitons, etc. (It may be beneficial to develop materials for this particular activity.)

Step 2: The teacher reads the passage orally and thinks aloud through the problem spots. The students read silently and observe the teacher's thinking processes.

Note: The teacher includes some of the following points in the think aloud procedure.

a. How a hypothesis may be developed from a chapter title, heading, or subheading.

Example: "The name of this section is 'The Speaker's Attitudes'. This section will probably discuss how the speaker's attitudes affect the speaker and the audience."

b. How to use imagery as reading progresses. (See "During" Reading Activities, No. 2.)

c. How to link prior knowledge with new information.

Example: "I remember reading about something similar to this in the newspaper last week."

d. How to monitor ongoing comprehension by verbalizing confusing points.

Example: "What does this mean? This statement makes no sense."

e. How to use fix-up strategies.

Example: "I do not understand this paragraph; I need to read this again." OR "I am really getting lost. How does this idea fit in this section? I will look back at the heading to see if that helps."

Step 3: When oral reading is completed, the students add their thoughts about what has been read.

Step 4: After several think aloud demonstrations, the students are divided into groups to practice the think aloud procedure. One student reads aloud and thinks aloud as the other student follows along. Then the roles are reversed. (Note: Gradually progress from teacher developed materials to regular texts.)

Step 5: Students are encouraged to practice the think aloud procedure as they read material silently.

Step 6: A checklist is distributed periodically for students to complete. (See sample in Figure 1.) The purpose of the checklist is twofold: 1) to motivate and remind students to monitor their own comprhension and 2) to help the teacher evaluate student involvement during silent reading.

Figure 1

Self Evaluation

How did I do as I read?	Never	Hardly Ever	Sometimes	Always
I made predictions.				
I tried to picture things I read about.				
I connected new information with what I already knew.				
I recognized my comprehension problems.				
I used fix-up strategies.				

2. Group Close Activity (Steward-Dore, 1982)

Purpose: To promote more thoughtful reading.

Step 1: The teacher prepares passages with words deleted on the basis of meaning available in the text.

Step 2: Students read around the deleted words and insert words that make sense.

Step 3: Students justify their choice of words.

(Note: Students can work on this activity individually first and later share their answers with partners.)

3. Confirmation Strategy (Holmes, 1983)

Purpose: To help poor readers use the same kinds of strategies good readers use to answer inferential questions. To help students follow a logical line of reasoning to a conclusion.

Step 1: The students read a passage and an accompanying question.

Step 2: The students generate tentative answers to the question.

Step 3: The students identify key words beginning with the first sentence of the paragraph.

Step 4: The teacher formulates yes/no questions from the students' tentative answers and from key words and phrases. The teacher models questions that students might ask to verify tentative answers. All key words and phrases are tested. Students eliminate hypotheses by answering the questions. (The questions serve to help students focus on the problem. This procedure illustrates a systematic search for an answer. Later the teacher's role is phased out and the students begin to ask questions themselves.)

Step 5: When all the affirmative responses have been given, the students are fairly sure they have discovered the correct answer. The answer has been confirmed.

Sample passage: "The more Ray walked, the darker it grew. He had to crouch to keep from bumping the overhanging branches. To his left ran a small brook. It was the only sound he heard; even his footsteps were silent as he walked over the pine needles. When he turned around, Ray could not see the place from which he had come.

Sample question: Where is Ray?

Sample answer: beach

Sample key words from sentence 1: walked, darker it grew, crouch, overhanging branches

Sample yes/no questions: If Ray was on the beach, could he bump his head on overhanging branches?

4. Written questions (Van Jura, 1982)

Purpose: To help students remember information they read and to teach them to read for comprehension.

Step 1: The teacher decides what the students should learn from their reading.

Step 2: The teacher intersperses questions throughout the reading assignment. If the information to be remembered is of a factual nature, the questions are placed after the section in which the answer is found. If the answer requires students to interrelate information, the questions are placed before the reading section.

Step 3: The students read the passage. (They are better able to focus their attention as they read because they have questions to answer.)

(Note: A handout with questions and pages to read would be the easiest way to carry out this activity.)

5. ThinkAbout (Bondy, 1984)

Purpose: To help students develop a systematic way of approaching problems and to help them become more independent learners.

Step 1: The teacher develops a problem-solving guide which the students use as they read. (See the sample below.)

HEY, WAIT! (Recognize that there is a problem and define the problem.)

THINK. (Consider the alternatives and try one out to solve the problem.)

TEST. (Evaluate the effectiveness of the solution.)

ACT. (Decide what to do next--stop reading, try another alternative, etc.)

Step 2: Students use the guide as they read.

6. Anticipation Guide (Wood & Mateja, 1983)

Purpose: To familiarize students with the major concepts of a reading passage.

Step 1: The teacher selects the major concepts and significant details from the reading selection.

Step 2: Five to eight general statements are developed by the teacher to reflect a common misconception about the topic. The statements are placed on a handout, chalkboard, or overhead projector.

Step 3: Students agree or disagree with the statements. (They may work individually or in small groups.)

Step 4: Students discuss their responses and justify their opinions.

Step 5: Students read the selection.

Step 6: Students respond to the statements again. This step helps the students recognize what they have learned from their reading.

7. Graphic Organizer (Wood & Mateja, 1983)

Purpose: To diagram the key concepts and vocabulary in a reading selection. To illustrate the relationship among major and minor details and significant vocabulary.

Step 1: The teacher identifies and lists vocabulary that is necessary for the comprehension of the reading selection.

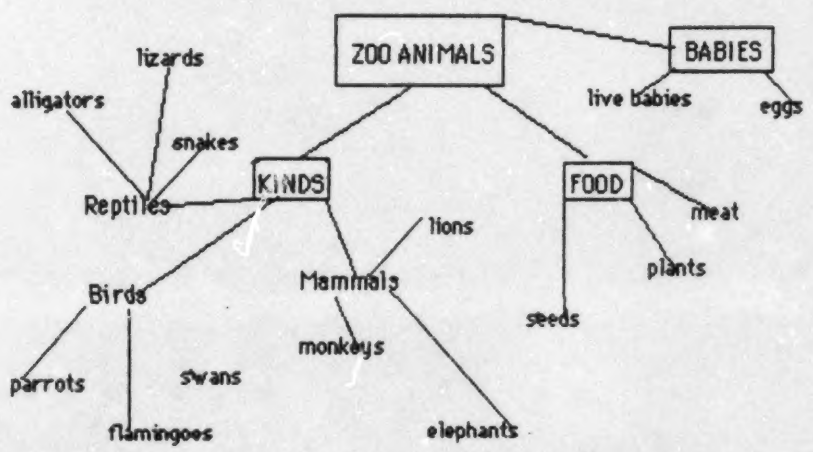
Step 2: The teacher selects a diagram which appropriately reflects the relationships between terms. (Familiar concepts and terms may be added to help students understand the relationships.) The teacher evaluates the diagram to make sure major relationships are well illustrated and that objectives of the unit are reflected.

Step 3: The teacher presents the graphic organizer to the students on an overhead, chalkboard, handout, poster, etc. The teacher explains why the terms are arranged in a particular manner.

Step 4: Students discuss what they know about the topics.

Step 5: The diagram is referred to as the students read and may be expanded by the students as the reading progresses. (See the sample in Figure 2.)

Figure 2



8. Guide-O-Rama (Wood & Mateja, 1983)

Purpose: To highlight significant ideas in a selection. To generate questions about a topic. To guide students' thinking about a reading selection. To provide a group of questions that require a written response.

Step 1: The teacher identifies the purpose for reading a particular selection.

Step 2: The teacher selects the sections of the passage that are necesary and/or those that may cause confusion.

Step 3: Questions and statements are formulated by the teacher to help students comprehend the reading.

Step 4: The teacher chooses a format that is stimulating and will help to create interest.

Step 5: The guide is presented to students in the form of a handout, overhead projection, etc. The teacher demonstrates the use of the guide to the students.

Step 6: The students complete the Guide-O-Rama.

Step 7: Students discuss their answers. (See the sample in Figure 3, page 23.)

9. Request (Manzo, 1969)

Purpose: To provide an active learning situation for developing appropriate questioning behaviors.

Step 1: The teacher and students read the first paragraph of a selection silently.

Step 2: After reading the selection, the teacher closes his/her book and the students ask the teacher as many questions about the passage as they wish. The teacher answers questions as completely as possible. If questions need to be rephrased, the teacher askes for clarification.

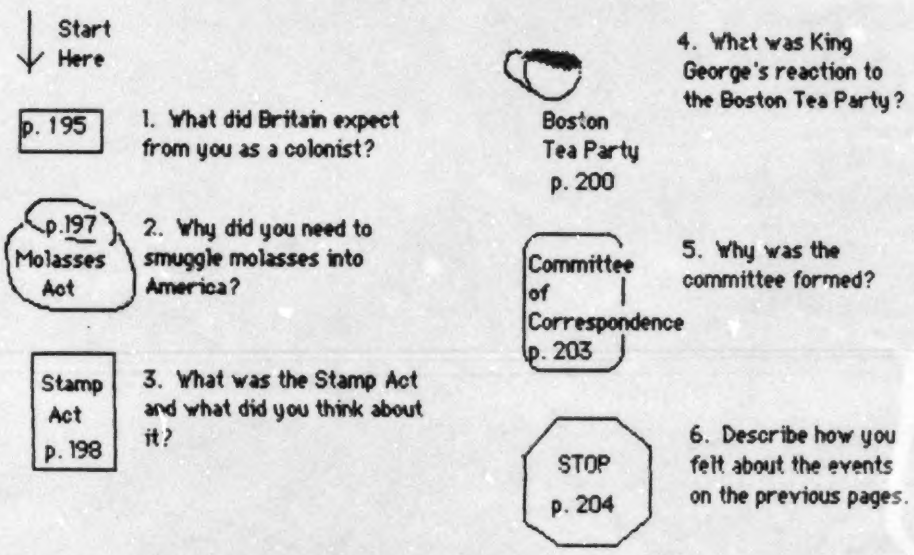
(Note: The teacher reinforces good questions by responding with statements such as: "That is a very good question. I have to think about what I read in this paragraph and relate it to information in the second paragraph." These statements not only reinforce good questioning behavior but also give the students an idea why certain questions are good questions.)

Step 3: After the teacher has answered all the students' questions, the students close their books and the teacher asks the questions. The teacher models good questioning behavior and is careful not to ask only recall or recognition questions. The answers to the teacher's questions should require some critical thinking.

Step 4: The above procedure is continued on several paragraphs. The teacher asks questions which require integration of thoughts and ideas from prior paragraphs.

Step 5: The procedure is continued until students can predict what will be discussed in a particular section. When the students can make predictions, they are directed to read the section to confirm their predictions.

Figure 3


Purpose: Imagine that you were a colonist when Great Britain ruled America.
Describe how you felt at each of the events on pages 195-204.
Start Here
p. 195
1. What did Britain expect from you as a colonist?
p. 197
Molasses Act
2. Why did you need to smuggle molasses into America?
Stamp Act p. 198
3. What was the Stamp Act and what did you think about it?
Boston Tea Party p. 200
4. What was King George's reaction to the Boston Tea Party?
Committee of Correspondence p. 203
5. Why was the committee formed?
STOP p. 204
6. Describe how you felt about the events on the previous pages.

PREREADING ACTIVITIES

1. Questioning

Purpose: To help students develop their own purposes for reading. To help students focus on the most important information in a chapter. To help students become more actively involved as they read.

Step 1: The teacher demonstrates how statements can be turned into questions using words such as *who, what, when, where, how, why.*

Step 2: Students are divided into small groups and asked to turn chapter headings and subheadings into questions.

Step 3: The groups' questions are shared with the entire class.

Step 4: The teacher demonstrates the development of questions that, when answered, will show the relationship between various headings and subheadings.

Step 5: Students develop questions which reflect relationships rather than isolated facts.

2. Brainstorming

Purpose: To create a scheme in which to put new information. To generate thinking about a topic. To help improve concentration as students read.

Step 1: A topic is presented to the students. (One way to do this is for the teacher to write the name of a chapter on the board.)

Step 2: The students "throw out" any thoughts that come to their minds as they think about the chapter title. Any response is accepted.

Step 3: The teacher or an appointed secretary records the responses on the board.

Step 4: The responses are categorized by the class, small groups, or individuals.

Step 5: After the students have manipulated their ideas about the chapter they read the chapter.

3. Prereading (Predicting)

Purpose: To develop a schema in which to put new informaton. To stimulate thinking about a particular topic before reading begins.

Step 1: A discussion is generated by asking students to predict from the headings and subheadings the kind of information that may be discusssed in a reading passage.

Step 2: Students formulate and reformulate their hypotheses as they hear their friends' thoughts.

Step 3: The students' final hypotheses are recorded in a journal.

Step 4: Students read the selection and test their predictions.

Step 5: Students record new findings in their journals alongside their predictions.

4. Think Sheets (Clewell & Haidemos, 1983)

Purpose: To provide a framework from which information in a passage may be predicted.

Step 1: A textbook chapter is chosen by the teacher.

Step 2: Headings and subheadings are listed on a handout or chalkboard. Spaces are left between each heading and subheading. (If no subheadings are given, first sentences of paragraphs could be used.)

Step 3: Students predict the kinds of information that might be discussed under each heading and subheading. The predicitons are recorded under the appropriate headings and subheadings.

(This step might be carried out in a large group discussion, by small groups, or by individuals.)

Step 4: Students read the chapter and check the accuracy of their predictions.

Step 5: Students revise the information they recorded in step 3.

5. Previewing

Purpose: To help establish a scheme in which to add new information. To help students realize that they do know something about a new topic. To help students make the connection between what they already know and what they need to learn.

Step 1: The students and teacher read the chapter title, headings, and subheadings.

Step 2: The teacher points out the relationships between the headings and subheadings.

Step 3: Students brainstorm about what will be discussed in each section of the chapter. The teacher records the responses on the board under the appropriate headings or subheadings.

6. Reaction Statement Strategy (Shenkman, 1982)

Purpose: To draw upon the experience of the reader so that a schema may be activated. To assist students in the integration of main ideas within a reading selection.

Step 1: The teacher chooses the main ideas from a selection.

Step 2: The teacher formulates a provocative statement related to the major concepts of the passage and writes it on the board.

Step 3: Students react to the statement in a discussion or in writing.

Step 4: If writing is used, students may share their responses with others.

Step 5: If a discussion is used, notes are taken to record the ideas generated.

Step 6: After students have read the selection, they can go back to the ideas they had before reading and see what they knew before reading and discover what they learned.

7. Stimulus Association Strategy (Shenkman, 1978)

Purpose: To develop a schema in which new information may be integrated.

Step 1: The teacher provides stimulus words and/or phrases that reflect the major concepts of the passage.

Step 2: Students think of as many associations with the stimulus words as they can. (They may work individually or in small groups.)

Step 3: Students categorize the words. (This step may serve to produce a map of the schema being developed.)

Step 4: Students compare their lists and in doing so learn from the ideas of others. The schema is, therefore, developed further.

8. Self-interrogation (Brown, 1978)

Purpose: To teach students to think and ask questions before they begin to read so that comprehension may be enhanced.

Step 1: The teacher develops a set of guidelines that students follow before they begin to read a passage. These questions serve as a self-interrogation tool.

Example: a. What is the title?

b. STOP and THINK - What might be discussed in the chapter?

c. What is my purpose for reading?

d. What do I already know about the topic that should help me as I read?

e. What else do I need to know before I begin to read?

"DURING" READING ACTIVITIES

1. Look Backs (Senecore, 1984)

Purpose: To teach students to use fix-up strategies as they read.

Step 1: The teacher models the use of look backs as he/she reads a textbook selection aloud to the class. (See Teacher Directed Activities, No. 1.)

Step 2: The teacher gives the students a list of fix-up strategies that may used as students read.

Step 3: The teacher asks the students to read a passage aloud to a partner and to verbalize the fix-up strategies they use as comprehension problems develop and try to solve those problems. The students refer to the handout that was distributed in step 2 to get suggestions and help.

2. Visual Imagery (Oliver, 1982)

Purpose: To teach students to visualize so that they may comprehend and remember information more effectively.

Step 1: Students are introduced to the concept of visualizing by comparing it to seeing things in a dream.

Step 2: Students close their eyes and imagine they are looking at something. (The teacher specifies the image, preferably something with which the students are very familiar.)

Step 3: The students describe what they see by answering very specific questions. These questions will help the students be more specific about their images.

Example: The students imagine (visualize) a car. Questions such as the following are asked.

a. What color is the car? b. What kind of fabric is used in the interior? c. What kind of wheels does the car have? d. What kinds of gadgets are on the instrument panel? e. Are there bucket seats or a bench seat? f. Is it a straight shift or an automatic?

Step 4: After the students have practiced developing mental images, the teacher explains that when authors write stories they describe what they have imagined or visualized. Students are reminded that it is easier to understand what an author is saying if the reader can actually picture that which the author is writing.

3. Coding (Smith & Dauer, 1984)

Purpose: To direct students' thinking to a teacher-prescribed purpose. To help students become more aware of what they understand and do not understand about a passage. To aid motivation and concentration as students read. To gather diagnostic data for developing future reading assignments.

Step 1: The teacher develops a code that can be used by students to assist them in monitoring their own comprehension. Example: C=clear, D=difficult, I=important, M.I.=main idea.

Step 2: The teacher introduces the comprehension coding process by using a think-aloud procedure, (see Teacher Directed Activity, No. 1), modeling his/her thinking processes, reflecting on the material, and demonstrating the decoding procedure. (Preferably the procedure would be demonstrated on a portion of a text excerpt that students will read).

Step 3: After the teacher has demonstrated the coding process on half of a particular reading

selection, the students read the remainder of the selection, monitor their comprehension, and record their responses (using the code) on strips of paper affixed to the margins of the text.

Step 4: A post reading discussion using students' responses is conducted after the reading is completed. The discussion helps to clarify problems/confusion students may have had as they read. It also serves to help the teacher identify difficult concepts/ideas that need to be retaught or further developed.

4. SQ3R (Robinson, 1970)

Purpose: To give students a systematic way to study-read a textbook chapter. To facilitate active reading.

Step 1: The teacher introduces each step in the SQ3R process. The steps may be introduced one at a time or as a series of steps.

Step 2: The S stands for survey. The students read the title of the chapter, the chapter introduction, the headings, subheadings, picture captions, chapter summary, and the end-of-chapter questions. The teacher directs the students to notice the relationships between headings and subheadings.

Step 3: The Q stands for question. The students turn the headings and subheadings into questions. Use of words such as *who, what, when, where, why, and how* will facilitate the question formulation process.

Step 4: The first R stands for read. Students read the chapter. They keep their questions in mind as they read. As they read they try to find the answers to their questions. Additionally they notice other significant information.

Step 5: The second R stands for recite. After the students read a section of the chapter or the entire chapter they try to recite or write the answers to their questions from memory. Additionally, the students recite the main idea of each section. Reciting should be done immediately after reading a chapter.

Step 6: The third R stands for review. A review is conducted after the students have completed the chapter. Review is done by reciting the main ideas from the chapter and/or answering the end-of-the-chapter questions. Reviewing should be done periodically.

5. Guided Practice (Simpson, 1984)

Purpose: To help students practice comprehension monitoring skills that have been modeled by the teacher.

Step 1: The teacher develops a checklist that students can refer to as they read. A list of suggested pointers follows:

a. Did you read the chapter title and think about what the chapter might be about?

b. Did you remember to read the chapter introduction, headings, subheadings, summary, and end-or-the-chapter questions before reading the chapter?

c. Did you turn the headings and subheadings into questions before you read? You can keep those questions in mind as you read.

d. Did you stop reading (at the end of each major section) and recite the important points in that section?

e. Did you look at the graph on page 45? It will help you understand the reading on pages 43-47.

f. Now that you have finished reading the chapter, did you remember to review the major points by reciting?

Step 2: The students are given the handout and instructed to use it as they read the assigned material.

(Note: Directions indicating pages to be read should be included on the handout to facilitate the use of the handout while reading.)

6. Learning Log

Purpose: To enable students to become better comprehension monitors.

Step 1: Students are instructed to keep a daily record of their reactions and reflections as they read.

Step 2: Students read a passage.

Step 3: Students record confusing points, questions about information that needs to be studied more or needs clarification, and important insights.

7. Interactive Learning Game (Brown & Palincsar, 1982)

Purpose: To help students learn comprehension monitoring strategies.

Step 1: A tutor and student read a portion of a reading passage.

Step 2: The dialogue leader (tutor) paraphrases the main idea.

Step 3: The leader discusses how pieces of information might be grouped or classified.

Step 4: The leader predicts possible questions that might be asked about the passage.

Step 5: The leader hypothesizes about the content of the remainder of the passage.

Step 6: The leader comments about any confusing portions and describes how the confusion might be resolved.

Step 7: The leader asks the other person a question about the passage.

Step 8: The roles of dialogue leader and student are reversed.

(Note: In the initial phase, the tutor should model the comprehension monitoring strategies. In the intermediate phase, the student should be more able to take on some of the dialogue role. After approximately ten sessions, the student should be able to paraphrase and ask relatively sophisticated questions.)

POST READING ACTIVITIES

1. 3 Level Guide (Stewart-Dore, 1982)

Purpose: To foster thinking and reasoning during reading.

Step 1: The teacher develops three sets of statements from a reading selection. One set is on the literal level. One set is on the interpretative level and the other set is on the applied level.

Step 2: Students read a passage and mark the statements as literal, interpretative, or applied. The directions for students follow.

a. Decide which statements are said by the author in the passage. (Literal)

b. Decide which statements can be inferred from the story. (Interpretive)

c. Decide which statements you think the author would support. (Applied)

Step 3: Students justify their choices in a group discussion.

2. Webbing (Clewell & Haidemos, 1983)

Purpose: To provide a graphic representation of important relationships among details.

Step 1: The teacher draws a circle on the board.

Step 2: The students locate the main idea of the passage, and the teacher writes the main idea in the center of the circle.

Step 3: Students locate the major details.

Step 4: The teacher places major details in smaller circles which are connected to the center circle by spokes.

Step 5: Students locate minor details.

Step 6: The teacher places minor details in even smaller circles which are connected to the major detail circles with spokes.

3. Translating Information Activity (Stewart-Dore, 1982)

Purpose: To help students apply the information they learn in class.

Step 1: Students study particular information.

Step 2: The teacher gives students the context of a situation in which students will assume a role.

Step 3: Students work together to explore ways that specific information could be presented to a specific audience from a particular point of view.

Step 4: The purpose for writing and/or the form of writing is given by the teacher or chosen by the students.

EXAMPLE: The students study about traditional folk art communities. The context provided is a guided tour of the community. The students accept the role of tour guides. The audience is a group of tourists. The purpose of writing is to provide information about what will be seen in the community. A brochure is the form chosen.

4. Pyramiding (Clewell & Haidemos, 1983)

Purpose: To help students organize information. To assist students in distinguishing between main ideas, major details, and minor details.

Step 1: Students read a passage.

Step 2: Students choose facts which appear important. The teacher writes those facts on index cards or sentence strips.

Step 3: The cards are displayed in random order.

Step 4: The teacher asks what the passage is about.

Step 5: The card containing the topic is placed at the top of the pyramid.

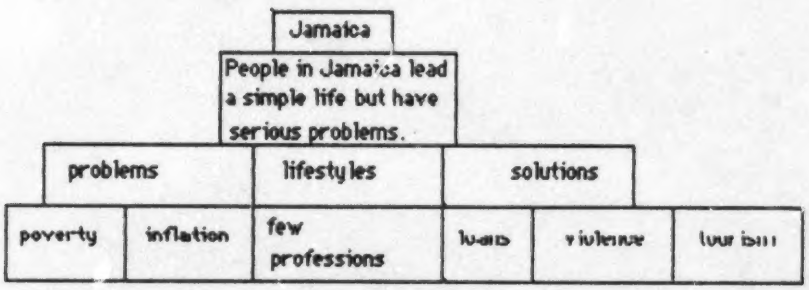
Step 6: The teacher asks students to choose the main idea of the paragraph by answering the question, "What about the topic is being discussed?" This response is placed under the topic.

Step 7: Students identify the cards containing major details. These cards are placed under the main idea.

Step 8: Students identify minor details. The cards containing minor details are placed under the appropriate major details. The minor details form the base of the pyramid.

(See Figure 4 for a sample pyramid.)

Figure 4



5. Mapping

Purpose: To provide students with a visual representation of the relationships between the main idea, major details, and minor details.

Step 1: Students read a passage and identify main ideas.

Step 2: Students choose a drawing that will help them remember something about the reading.

Step 3: The main idea is written in the center of the drawing.

Step 4: Major details are identified.

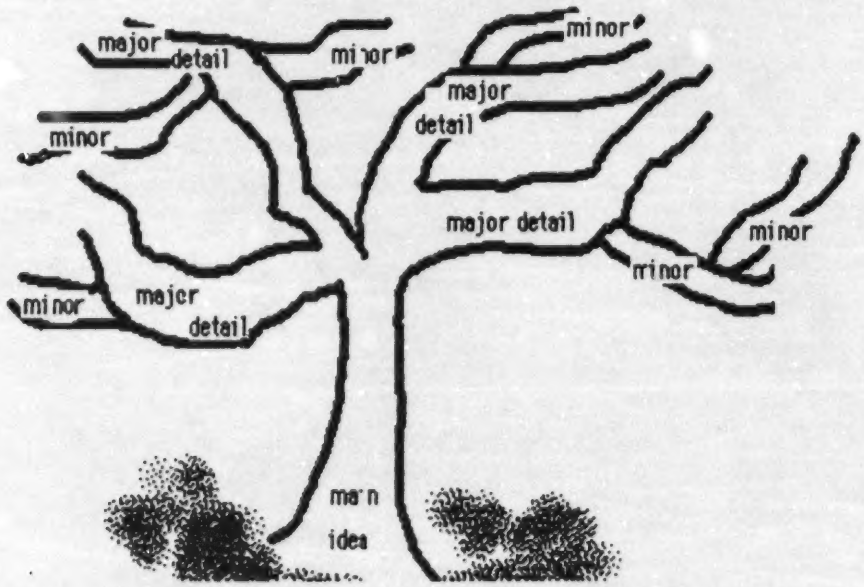
Step 6: The major details are connected to the main idea in some manner.

Step 7: The minor ideas are identified.

Step 8: Minor ideas are attached to the appropriate major details.

(See the sample in Figure 5.)

Figure 5



6. Summarizing (Stewart & Tei, 1984)

Purpose: To help students summarize main ideas more easily.

Step 1: Students are given a list of rules for choosing main ideas.

Step 2: Students use the rules to check their learning as they read.

The rules follow:

a. Omit trivial information.

b. Omit redundant information.

c. Think of a general term to replace a list of smaller details.

d. Select a topic sentence in order to summarize the paragraph.

Step 3: Students record the main ideas.

Step 4: A large or small group discussion may be utilized to talk about the ideas students identify.

Step 5: Students justify their reasons for choosing the details they recorded.

ONGOING ACTIVITIES

1. QARS (Raphael, 1982)

Purpose: To help improve awareness of comprehension, self-monitoring, and intervention (fix-up) strategies.

Step 1: The teacher works with small groups to introduce the terminology of QAR's by using a transparency. (See Figure 6 following step 9.)

Step 2: The teacher tells the students they will be discussing different kinds of questions and the best way to answer those questions. The three types of questions are: *Right There* questions, *Think and Search* questions, and *On My Own* questions. The students are instructed that they can decide the type of question by figuring out where they get the information to answer the question.

Step 3: The teacher discusses the differences between text-based questions and knowledge-based questions.

Step 4: The teacher discusses the differences between *Right There* and *Think and Search* questions. A question is classified *Right There* if the information for the question and answer are found in a single sentence. A question is classified as *Think and Search* if the question and answer are found by combining information in at least two sentences.

Step 5: After the teacher introduces QAR's the students have a chance to practice. The students are given passages to read. The questions and answers are provided and the QAR's identified.

Step 6: The class discusses why the questions and answers are identified as particular QAR's.

Step 7: After students have become quite proficient with step 6, they proceed to more sophisticated practice. Students are given the passages, the questions, and answers. The students identify the QAR.

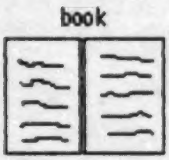
Step 8: After the students can identify the QAR, they go one step further. The students read the passage, answer the questions, and identify the QAR.

Step 9: As students become more adept at this identification, the teacher introduces 75 to 150 word passages and approximately five questions. Each QAR should be represented at least once. The teacher reviews the QAR procedure and works through the first long passage or two with the students. Then the students may work independently. (The length of the passages and the number of questions asked should gradually be increased.)

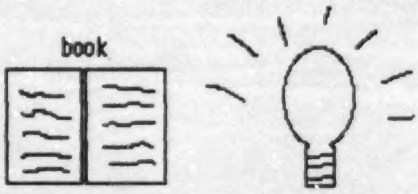
Figure 6

THREE KINDS OF QUESTIONS

1. Right There - The answer is right in the book and easy to find. The words in the question and the answer are found in the same sentence.



2. Think and Search - The answer is in the book but is not as easy to find. The question and answer are not found in the same senteence. You heve to think and search for the answer.



3. On My Own - The answer will not be found directly in the book. You must read then think of the answer.

2. Directed Reading Teaching Activity - DRTA (Van Jura, 1982)

Purpose: To assist students in making predictions about what they will read, to verify those predictions, and to refine predictions as reading occurs. To help students who are reading materials that are on their instructional reading levels rather than their independent reading levels.

Step 1: The teacher explores the students' backgrounds about a topic and the skills necessary to understand that topic. He/she notes misconceptions students have about the topic. Students' backgrounds and skills are built as needed. Activities to use for background and skill development follow.

a. Review previous related readings.

b. Review or teach word attack and/or comprehension skills necessary for the completion of the reading assignment.

c. Show a filmstrip that will enhance student background.

d. Bring in a speaker who is knowledgeable about the topic to be studied.

Step 2: Students preview the chapter. Students' attention is called to the basic structure of the information, headings and subheadings, and study aids included in the chapter.

Step 3: The teacher introduces vocabulary pertinent to the concepts introduced in the chapter. Some structural analysis and word meaning may be introduced.

Step 4: The teacher sets purposes for reading. Purpose questions are developed by the teacher and students.

Step 5: Students read the assignment silently.

Step 6: Students discuss the assignment or respond to it in some other way. The teacher decides what type of sharing activity will be carried out. Some examples follow: answering purpose questions, writing journal entries, drawing illustrations, taking a quiz, etc.

Step 7: The sharing activity is extended in various ways: related materials may be read; bulletin boards may be designed; projects may be developed; appropriate people may be interviewed; skits or T.V. scripts may be written, reports may be prepared, etc.

3. Modified DRTA (Colwell & Helfeldt, 1983)

Purpose: To introduce students to various organizational patterns used by authors.

Step 1: Follow the same procedure as described in the DRTA. (See Ongoing Activitis, No. 2.) In addition the teacher adds the following kinds of instructions to alert students to organizational patterns.

Step 2: The teacher presents several paragraphs which are developed using the same organizational pattern. The teacher leads a discussion about the paragraph type.

Step 3: A list of signal words that provides clues about paragraph organization is distributed to the students.

Step 4: Another handout containing paragraphs using various organizational patterns is distributed.

Step 5: Students identify organizational patterns of the paragraphs. (Diagrams may be developed to assist students as they identify organizational patterns. Sample diagrams appear in Figure 7.)

Figure 7

A. Cause/effect pattern. The cause/s are listed on the left and the effects on the right.

a. _____ ----------> 1. _____

(cause) ----------> 2. _____

----------> 3. _____

(effects)

b. 1. _____ ----------> _____

2. _____ ----------> (effect)

3. _____ ---------->

4. _____ ---------->

(causes)

B. Comparison/contrast. The two items being compared and contrasted are listed on opposite sides of the form.

_____ _____

(Item 1) (Item 2)

_____

_____

_____ Likenesses

_____

(Comparison/contract continued.)

_____ _____

(Item 1) (Item 2)

_____

_____

_____ Differences

_____

C. Sequence. The numbers indicate the order in which an event occurred. A general statement is written to describe the process being delineated. The students write a sentence describing each step.

_____

(event or function)

1._____

2._____

3._____

4._____

5._____

6._____

CHAPTER 5

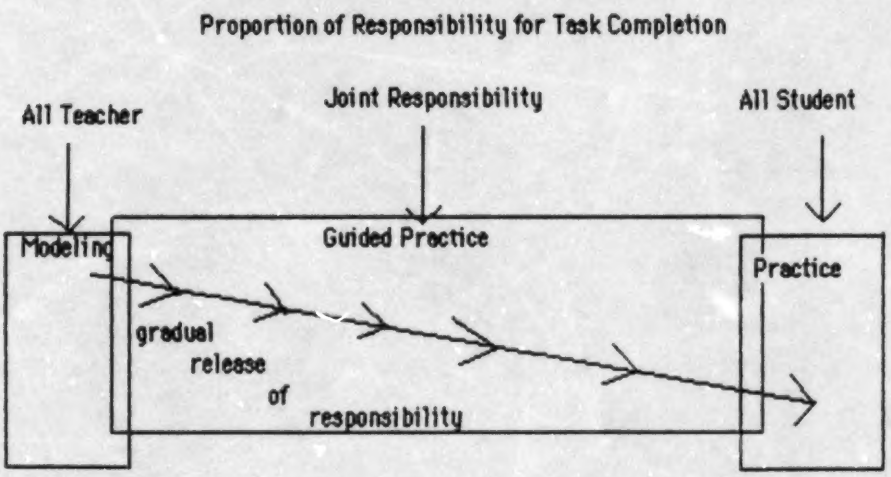
CONCLUSION

The ultimate goal of reading instruction is to develop independent readers. To become independent students must be in control of their own thinking processes. They must be aware of cognition and the conscious use of metacognitive processes . Instruction in metacognition will help students gain control over their own thought processes.

To assist students in the development of metacognitive skills and strategies a variety of activities and techniques may be utilized. Of utmost importance in the instructional process is the gradual, guided shift of responsibility for learning from the teacher to the student. A model of explicit instruction which illustrates this shift is shown in Figure 8. (Pearson & Gallagher, p. 337, 1983)

Figure 8

Model of Explicit Instruction



Interaction is also an extremely important aspect of explicit instruction--interaction between teacher and student, teacher and text, student and text, student and student. Teaching procedures that stress the modeling of metacognitive strategies, interaction between teacher/student/text, and provide opportunities for practice result in increased comprehension of text. Students are not taught about metacognitive skills but are, instead, led to their use.

SUMMARY

This paper has broached the problem of teaching reading comprehension in the content areas. The focus has been on metacognitive skills and strategies necessary for efficient reading comprehension. Studies which help delineate the differences between good and poor readers were presented. Comprehension monitoring and the use of appropriate metacognitive skills and strategies particularly, seemed to be one of the major differences between poor and proficient readers. The writer proposed that explicit instruction in the use of various metacognitive skills and strategies is imperative to assist inexperienced and poor readers to become better readers. Implementation strategies for classroom use were presented.

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